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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,540	02/12/2001	Yoshihisa Hirayama	01028	8391

7590

03/03/2003

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EXAMINER

NGUYEN, THONG Q

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/780,540

Applicant(s)

HIRAYAMA ET AL.

Examiner

Thong Q. Nguyen

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2872

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

R sponse to Amendm nt

1. The present Office action is made in response to the amendment (Paper No. 17) filed on 1/3/2003. .

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

See the rejection as set forth in the previous Office action (Paper No. 15, page 2).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claim 1, as best as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Qiao et al (U.S. Patent No. 5,485,291) in view of Tai et al (U.S. Patent No. 5,668,913) and Suzuki (EP 924 549) (all of record).

Qiao et al disclose an edge light for panel display. At columns 2-3 and in figures 2-3, the device comprises a light source system (32) for providing light, a light

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guide (12) having a front surface (13) facing the light source system, a light discharge surface (21) facing the display panel (31); a reflecting surface (22) disposed opposite the light discharge surface (21) facing a reflector (26) which is disposed parallel to the reflecting surface (22); a rear surface (14) located opposite the front surface (13) wherein the rear surface (14) faces a reflector (28). The discharge surface (21) and the reflecting surface (22) are disposed in a parallel manner. The light reflecting surface (22) comprises a plurality of grooves each has a front side (23) and a rear side (24). Since the angle formed by the front side (23) and the light reflecting surface (22) is in the range of $(1^\circ, 15^\circ)$ and the angle formed by the rear side (24) and the light reflecting surface (22) is in the range of $(35^\circ, 55^\circ)$; therefore, the angle formed by the front side (23) and a line perpendicular to the light discharge surface (17) is in the range of $(75^\circ, 89^\circ)$ and the angle formed by the rear side (24) and a line perpendicular to the light discharge surface (17) is in the range of $(35^\circ, 55^\circ)$. The light rays from the light source (32) passing through the front surface (13) of the light guide (12) will have a part of light rays being reflected by the front side (23) of each groove towards the display panel (12) as can be seen in rays (30a) described in column 3 and fig. 2., and other light rays which are not reflected by the front side (23) of the groove will be guided by the light guide (12) to the rear end (14) and then those light rays are reflected by the reflector (28) to return to the light guide and reflected from the facets (24) to illuminate the display (31). As such, the display panel is illuminated by both light rays reflected by the front side (23) and the rear

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side (24) of each groove formed on the reflecting surface (22). With regard to the light source system and its position with respect to the light guide, at column 3 (lines 50+), Qiao et al teach that the light source can be light emitting diodes, and the number of light source be used in the system can be a single light source which is disposed at the central position of the front side surface (23) of the light guide (12). See column 3 and fig. 3.

There are two things missing from the art of Qiao et al as follow: First, they do not clearly state that the reflector (28) facing the rear surface of the light guide is a diffusion and reflection element as claimed, and second, the grooves are continuously formed on the light reflection surface of the light guide.

With regard to the use of a diffusion and reflection element facing a rear surface of a light guide, such a use is known to one skilled in the art as can be seen in the system provided by Suzuki. In particular, Suzuki discloses a light source system having a light guide whose reflective surface comprises a plurality of prism element and a reflector disposed facing the rear surface of the light guide. The reflector (7) as described in columns 9-10 can be made by a film coated in white or a film mixed with a white pigment. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system provided by Qiao et al by using a diffusing and reflection element facing the rear surface of a light guide as suggested by Suzuki for the purpose of increasing the reflectance and diffusion of light returned to the light guide.

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As a result, the system provided by Qiao et al and Suzuki meets all of the features recited in the pending claim except the feature that the grooves are continuously formed in the light reflection surface; however, the arrangement of grooves in a surface in a continuously manner is clearly suggested to one skilled in the art as can be seen in the system provided by Tai et al. In particular, Tai et al discloses an optical guide light member having a reflecting surface with a plurality of grooves. As described in column 10 and shown in figs. 3C and 3E, Tai et al disclose that the grooves can be formed continuously in the surface as can be seen in fig. 3C or the grooves are arranged separated from each other as can be seen in fig. 3E. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the device provided by Qiao et al and Suzuki by using a plurality of grooved arranged in a continuous manner as suggested by tai et al for the purpose of improving the light distribution and/or meeting a particular application.

Response to Arguments

6. Applicant's arguments filed on 1/3/2002 have been fully considered but they are not persuasive.

A) In regard to the rejection of the claim under 35 USC 112, first paragraph, applicant has argued that the disclosure, as originally filed, in particular, figures 1-2, does provide support for the feature relating to the single light discharged opening recited in the newly-added material to the claim made by the amendment of 7/3/2002. See the amendment (Paper No. 17, page 3).

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The examiner respectfully disagrees with the applicant and respectfully invited the applicant to review the disclosure, in particular, the figures, to show where the mentioned feature is supported by the disclosure, as originally filed.

Applicant should note that the figures show a circuit board (s) and a LED 93) mounted on the circuit board. The figures do NOT show that the LED has "a single light discharge opening", and the specification is silent about the structure of the arrangement between the circuit board 92) and the LED (3).

B) With regard to the rejection of the claim under 35 USC 103(a) over the art of Qiao et al in view of Tai et al. applicant's arguments provided in the amendment (Paper No. 17, pages 4-5) have been fully considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (703) 308-4814. The examiner can normally be reached on M-F.

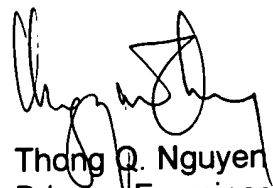
The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

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Thong Q. Nguyen
Primary Examiner
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February 24, 2003